WHAT IS CLAIMED IS:

Sub A17

1. A claw pole type actuator of a single-phase structure, comprising:

a stator yoke composed of a pair of substantially circular planar yokes formed of a soft magnetic material, polar teeth which axially protrude from inner peripheral edges of the respective planar yokes and which are disposed to face each other, extending in an axial direction, and a cylindrical ring provided on outer peripheral edges of one of said planar yokes;

an armature being constituted by installing a coil formed by winding a magnet wire in a coil receiving section shaped like an annular recess formed by said planar yokes, said polar teeth, and said cylindrical ring of said stator yoke; and

a stator assembly which has flanges with bearings provided on both end surfaces of said armature and in which a rotor provided with a magnet for a magnetic field composed of a permanent magnet being installed to face said polar teeth of said stator with a minute gap provided therebetween;

wherein a number of said polar teeth equals a number N of rotor magnetic poles.

Sub F1 Cont.

2. An actuator according to Claim 1, wherein said stator yoke is comprised of a first stator yoke in which a

planar yoke and a polar tooth are combined into one piece, and a second stator yoke in which a planar yoke, a polar tooth and a cylindrical ring are combined into one piece, and said polar teeth of said first and second stator yokes, respectively, are disposed at an spacing of approximately 180 degrees in terms of an electrical angle.

3. An actuator according to Claim 1, wherein a pair of stator yokes, each being composed of said planar yoke and said cylindrical ring that are combined into one piece, are disposed to face each other.

4. An actuator according to Claim 1, wherein a rotation of said rotor is restricted by a stopper so that a maximum angle of the rotational motion stays within a range of 120/N to 240/N degrees.

5. An actuator according to Claim 4, wherein said stopper is incorporated in said actuator.

6. An actuator according to Claim 1, wherein a groove or a cut for destroying magnetic balance is provided in an axial direction on a central portion of one of south pole and north pole of said magnet for magnetic field.

7. An actuator according to Claim 1, wherein extensions of said two polar teeth in a circumferential

direction are all the same and stay within a range of 220/N to 260/N degrees at central angle.

8. An actuator according to Claim 1, wherein air gaps in a radial direction formed by said polar teeth and said rotor magnet are uneven, and air gaps at central portions of said polar teeth are narrower than air gaps at ends of said polar teeth.

9. An actuator according to Claim 1, wherein said flanges are composed of a nonmagnetic material.

10. An actuator according to Claim 1, wherein a relationship between a detent torque Td (Nm) and a rated torque Trate (Nm) is as follows:

$Trate/4 \leq Td \leq 3\ Trate/4$

where Trate denotes a maximum torque value obtained when a rated current is passed, and detent torque Td denotes a maximum torque when a coil is in a deenergization mode.